

AMENDMENTS TO THE CLAIMS

1. (Previously presented) An objective lens drive for adjusting the tilt of an optical axis of an objective lens to be used for radiating light onto a recording medium, the drive comprising:

a lens holder for holding said objective lens;

a suspension which is at one end thereof fixed to said lens holder and which supports said lens holder in a cantilever fashion;

a suspension holder for supporting the other end of said suspension; and

a plurality of multilayer piezoelectric elements which laterally support said suspension holder,

wherein at least a first of said multilayer piezoelectric elements laterally supports a first side surface of said suspension holder and at least a second of said multilayer piezoelectric elements laterally supports a second side surface of said suspension holder opposite to said first side surface, and

wherein said first and second multilayer piezoelectric elements are displaced in opposite directions to rotate said suspension holder about an axis extending in a direction in which said suspension extends.

2. (Original) The drive according to claim 1, further comprising:

a guide pin for axially supporting said suspension holder in the direction said suspension extends.

3. (Original) The drive according to claim 1, further comprising:

a hinge mechanism for supporting a lower section of said suspension holder.

4. (Original) The drive according to claim 3, wherein
a recessed section is formed in the lower section of said suspension holder; and
said hinge mechanism is housed within said recessed section, and an interior surface of
said recessed section supports said suspension holder.

5. (Original) The drive according to claim 1, wherein
said suspension supports said lens holder in a cantilever fashion so that the holder is
movable in focusing and tracking directions; and
said multilayer piezoelectric element extends in a direction substantially perpendicular to
the direction in which said suspension extends, to thereby support said suspension holder.

6. (Original) The drive according to claim 1, wherein said multilayer piezoelectric
element is formed by stacking a plurality of layers in the focusing direction.

7. (Original) The drive according to claim 1, wherein said multilayer piezoelectric
element is a piezoelectric element of bimorph type in which layers are stacked in the focusing
direction.

8. (Original) The drive according to claim 1, wherein
said suspension has a plurality of suspension elements which laterally support said lens
holder at two different heights in a cantilever fashion; and
said multilayer piezoelectric element supports said suspension holder at a height which is
substantially halfway between said two different heights.

9. (Original) The drive according to claim 1, further comprising:
drive means for causing displacements in opposite directions by supplying a drive voltage
to a plurality of said multilayer piezoelectric elements.

10. (Original) The drive according to claim 9, wherein said drive means actuates a plurality of said multilayer piezoelectric elements that are to become displaced in opposite directions, to thereby rotate said suspension holder about an axis extending in the direction in which said suspension extends.

11. (Currently amended) An objective lens drive for adjusting the tilt of an optical axis of an objective lens to be used for radiating light onto a recording medium, the drive comprising:

a lens holder for holding the objective lens;

a plurality of suspensions which are at one end thereof fixed to right and left sides of said lens holder, support said lens holder in a cantilever fashion, and are provided so as to extend in a direction perpendicular to focusing and tracking directions;

a suspension holder for supporting the other end of the plurality of said suspensions;

first and second piezoelectric elements which attach said suspension holder to a carriage, which are fixed at one end thereof to said carriage and which are provided so as to extend in the tracking direction, said first piezoelectric element attaching to a first side surface of said ~~carriage~~ suspension holder and said second piezoelectric element attaching to a second side surface of said ~~carriage~~ suspension holder opposite to said first side surface; and

axial support means for axially supporting said suspension holder so that the suspension holder is rotatable in a radial direction of said recording medium, wherein torque is applied to said suspension holder by means of displacement of said first piezoelectric element in a first direction and displacement of said second piezoelectric element in a second direction opposite said first direction, so that said suspension holder is rotated in the radial direction of said recording medium.

12. (Original) The drive according to claim 11, wherein said axial support means is a guide pin which axially supports said suspension holder on said carriage along the direction in which said suspension extends.

13. (Original) The drive according to claim 11, wherein said axial support means is a hinge for supporting a lower section of said suspension holder along the direction in which said suspension extends.

14. (Previously presented) An optical disk drive, comprising:

- a lens holder for holding an objective lens to be used for converging a laser beam on an optical disk;
- a suspension which is at one end thereof fixed to said lens holder and supports said lens holder in a cantilever fashion;
- a suspension holder for supporting the other end of said suspension;
- a plurality of multilayer piezoelectric elements which laterally support said suspension holder, at least a first of said multilayer piezoelectric elements laterally supporting a first side surface of said suspension holder and at least a second of said multilayer piezoelectric elements laterally supporting a second side surface of said suspension holder opposite to said first side surface to thereby make said suspension holder rotatable about an axis extending in a direction in which said suspension extends; and
- a tilt sensor for detecting the direction and magnitude of a tilt made between said optical disk and an optical axis of said objective lens, wherein

at least the first and second multilayer piezoelectric elements are actuated in accordance with the magnitude and direction of tilt detected by said tilt sensor to thereby cause displacement of the first multilayer piezoelectric element in a first direction and displacement of the second

multilayer piezoelectric element in a second direction opposite said first direction, whereby said tilt is corrected by means of said displacements.

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS^{PLLC}
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100